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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/767,156	01/28/2004	Eric C. Hannah	42P11433C	4627
7590 03/04/2009 Blakely, Sokoloff, Taylor & Zafman LLP 7th Floor 12400 Wilshire Boulevard Los Angeles, CA 90025				
EXAMINER				
WILLIAMS, LAWRENCE B				
ART UNIT		PAPER NUMBER		
2611				
MAIL DATE		DELIVERY MODE		
03/04/2009		PAPER		

**Please find below and/or attached an Office communication concerning this application or proceeding.**

The time period for reply, if any, is set in the attached communication.

### Office Action Summary

**Application No.**

10/767,156

**Applicant(s)**

HANNAH, ERIC C.

**Examiner**

LAWRENCE B. WILLIAMS

**Art Unit**

2611

**Period for Reply** -- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

**Status**

- 1) ☒ Responsive to communication(s) filed on 24 November 2008.
- 2a) ☐ This action is **FINAL**. 2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

**Disposition of Claims**

- 4) ☒ Claim(s) 1-20 and 22-25 is/are pending in the application.
- 4a) Of the above claim(s) \_\_\_\_\_ is/are withdrawn from consideration.
- 5) ☐ Claim(s) \_\_\_\_\_ is/are allowed.
- 6) ☒ Claim(s) 1, 2, 8-18, 20, 23 and 24 is/are rejected.
- 7) ☒ Claim(s) 3-7, 19, 25 is/are objected to.
- 8) ☐ Claim(s) \_\_\_\_\_ are subject to restriction and/or election requirement.

**Application Papers**

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☐ The drawing(s) filed on \_\_\_\_\_ is/are: a) ☐ accepted or b) ☐ objected to by the Examiner.
- Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
- Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

**Priority under 35 U.S.C. § 119**

- 12) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☐ All b) ☐ Some \* c) ☐ None of:
1. ☐ Certified copies of the priority documents have been received.
  2. ☐ Certified copies of the priority documents have been received in Application No. \_\_\_\_\_.
  3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

\* See the attached detailed Office action for a list of the certified copies not received.

**Attachment(s)**

- 1) ☒ Notice of References Cited (PTO-892)
- 2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
- 3) ☐ Information Disclosure Statement(s) (PTO/SB/808)
- Paper No(s)/Mail Date \_\_\_\_\_
- 4) ☐ Interview Summary (PTO-413)
- Paper No(s)/Mail Date \_\_\_\_\_
- 5) ☐ Notice of Informal Patent Application
- 6) ☐ Other: \_\_\_\_\_

## **DETAILED ACTION**

### ***Claim Objections***

1. Claim 16 is objected to under 37 CFR 1.75(c), as being of improper dependent form for failing to further limit the subject matter of a previous claim. Applicant is required to cancel the claim(s), or amend the claim(s) to place the claim(s) in proper dependent form, or rewrite the claim(s) in independent form. Claim 16 claims "The apparatus of claim 15, wherein the communications interface is to receive a delay/amplitude echo map of the transmission channel from the communication receiving station". However, claim 15 claims "a communication interface... until a delay/amplitude echo map of the transmission channel is received from the communication receiving station".

### ***Claim Rejections - 35 USC § 112***

2. The following is a quotation of the first paragraph of 35 U.S.C. 112:

The specification shall contain a written description of the invention, and of the manner and process of making and using it, in such full, clear, concise, and exact terms as to enable any person skilled in the art to which it pertains, or with which it is most nearly connected, to make and use the same and shall set forth the best mode contemplated by the inventor of carrying out his invention.

3. Claims 8-14 are rejected under 35 U.S.C. 112, first paragraph, as failing to comply with the enablement requirement. The claim(s) contains subject matter which was not described in the specification in such a way as to enable one skilled in the art to which it pertains, or with which it is most nearly connected, to make and/or use the invention. Claim 8 claims a computer readable storage medium including program instructions executed by a processor. The specification offers no support for a computer readable storage medium.

Claims 9-14 are rejected based on their dependency upon rejected claim 8.

***Claim Rejections - 35 USC § 102***

4. The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

A person shall be entitled to a patent unless –

(e) the invention was described in (1) an application for patent, published under section 122(b), by another filed in the United States before the invention by the applicant for patent or (2) a patent granted on an application for patent by another filed in the United States before the invention by the applicant for patent, except that an international application filed under the treaty defined in section 351(a) shall have the effects for purposes of this subsection of an application filed in the United States only if the international application designated the United States and was published under Article 21(2) of such treaty in the English language.

5. Claims 1, 8, 15-16, 20-21 are rejected under 35 U.S.C. 102(e) as being anticipated by Zhang et al. (US Patent 6,775,240 B1).

(1) Regarding claim 1, Zhang et al. discloses in Fig. 1, a method comprising: transmitting a pulse signal (col. 3, lines 16-20; Zhang et al. discloses the examples of appropriate test signals including continuous, interrupted, or pulsed tones) over a transmission channel (Test Path) between a transmitting station (Test Transmitter) and a communication receiving station (Test Receiver); and repeating the transmitting of the pulse signal over the transmission channel between the transmitting station and the communication receiving station (col. 7, lines 10-12; Zhang et al. discloses the test signal may be transmitted for a period of a few minutes to may hours to characterize the QoS of a network or network path. Using a continuous pulse tone as test signal as specified in col. 3, lines 16-20 would constitute a repeating of the pulse signal for a few minutes or hours until characterization of the QoS of the network path is completed) until a delay/amplitude echo map of the transmission channel (Abstract, col. 9, lines 29-67) is received from the communication receiving station (col. 7, lines 13-22; Zhang et al. discloses that the

functions of the test analyzer/controller that is used to receive test samples recorded by the test receiver may be distributed among the test transmitter. Thus the transmitter would receive the QoS which Zhang et al. discloses as including echo analysis including echo amplitude and echo path round trip delay (col. 4, lines 52-54; col. 10, lines 26-31).

(2) Regarding claim 8, claim 8 discloses the method of claim 1 implemented by a computer using a computer readable medium including program instructions. Zhang et al. also discloses the test signal generator, test signal receiver and test signal analyzer may be implemented using a general purpose programmable computer (col. 2, lines 39-42).

(3) Regarding claim 15, Zhang et al. discloses in Fig. 1, an apparatus comprising: a communication interface to transmit (Test Transmitter) a pulse signal over a transmission channel (Test Path) to a communication receiving station (Test Receiver) and to repeat the transmission of the pulse signal over the transmission channel until a delay/amplitude echo map of the transmission channel is received from the communication receiving station. In col. 7, lines 10-12; Zhang et al. discloses the test signal may be transmitted for a period of a few minutes to many hours to characterize the QoS of a network or network path. Using a continuous pulse tone as test signal as specified in col. 3, lines 16-20 would constitute a repeating of the pulse signal for a few minutes or hours until characterization of the QoS of the network path is completed) until a delay/amplitude echo map of the transmission channel (Abstract, col. 9, lines 29-67) is received from the communication receiving station (col. 7, lines 13-22; Zhang et al. discloses that the functions of the test analyzer/controller that is used to receive test samples recorded by the test receiver may be distributed among the test transmitter. Thus the transmitter would

receive the QoS which Zhang et al. discloses as including echo analysis including echo amplitude and echo path round trip delay (col. 4, lines 52-54; col. 10, lines 26-31).

(4) Regarding claim 16, Zhang et al. also discloses the apparatus of claim 15, wherein the communications interface is to receive a delay/amplitude echo map of the transmission channel from the communication receiving station (col. 7, lines 13-22; Zhang et al. discloses that the functions of the test analyzer/controller that is used to receive test samples recorded by the test receiver may be distributed among the test transmitter. Thus the transmitter would receive the QoS which Zhang et al. discloses as including echo analysis including echo amplitude and echo path round trip delay (col. 4, lines 52-54; col. 10, lines 26-31).

(5) Regarding claim 20, Zhang et al. discloses in Fig. 1, a system comprising: a plurality of communication stations communicably coupled to form a wireless network (col. 3, lines 60-65, Zhang et al. discloses the invention for networks; Zhang et al. discloses data paths, structures, channel, and other communication paths (which would inherently include a wireless path) may be used to implement a facility, structure, or method for conveying information or signals; col. 3, line 66- col. 4, line 5; col. 4, lines 29-47, Zhang et al. discloses implementation in a network), each communication station comprising: a communications interface (Test Transmitter) to repeat the transmission of a pulse signal over a respective transmission channel (Test Path) until a delay/amplitude echo map of the respective transmission channel is received from a communication receiving station communicably coupled to the respective transmission channel.

In col. 7, lines 10-12; Zhang et al. discloses the test signal may be transmitted for a period of a few minutes to many hours to characterize the QoS of a network or network path. Using a continuous pulse tone as test signal as specified in col. 3, lines 16-20 would constitute a

repeating of the pulse signal for a few minutes or hours until characterization of the QoS of the network path is completed) until a delay/amplitude echo map of the transmission channel (Abstract, col. 9, lines 29-67) is received from the communication receiving station (col. 7, lines 13-22; Zhang et al. discloses that the functions of the test analyzer/controller that is used to receive test samples recorded by the test receiver may be distributed among the test transmitter. Thus the transmitter would receive the QoS which Zhang et al. discloses as including echo analysis including echo amplitude and echo path round trip delay (col. 4, lines 52-54; col. 10, lines 26-31).

(6) Regarding claim 20, Zhang et al. also discloses in Fig. 1, the system of claim 20, wherein each communication station further comprises: a back channel (126) to transmit a delay/amplitude echo map of a transmission channel to a communication transmission station.

### ***Claim Rejections - 35 USC § 103***

6. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

7. Claim 2 is rejected under 35 U.S.C. 103(a) as being unpatentable over Zhang et al. (US Patent 6,775,240 B1) as applied to claim 1, above, in view of Ulm et al. (US Patent 5,608,728).

Claim 2 inherits all limitations of claim 1 above. As noted above, Zhang et al. discloses all limitation of claim 1. Zhang et al. does not teach the method of claim 1, further comprising: pre-distorting signal transmissions over the transmission channel between the transmitting station

and the communication receiving station in order to eliminate channel echoes in a received data signal.

However, Ulm et al. discloses a system and method for equalization of forward and reverse channels of a communication network system wherein he teaches pre-distorting signal transmissions over the transmission channel between the transmitting station and the communication receiving station in order to eliminate channel echoes in a received data signal (col. 2, lines 50-56; In col. 1, line 55, Ulm et al. discloses that the expected distortions include signal reflections (echoes)).

One of ordinary skill in the art at the time of invention could have easily incorporated the teachings of Ulm et al. and would have been motivated to do so as a method of improving the quality of signals transmitted among nodes of a network.

8. Claim 9 is rejected under 35 U.S.C. 103(a) as being unpatentable over Zhang et al. (US Patent 6,775,240 B1) as applied to claim 8, above, in view of Ulm et al. (US Patent 5,608,728).

Claim 9 inherits all limitations of claim 8 above. As noted above, Zhang et al. discloses all limitation of claim 9. Zhang et al. does not teach wherein the method performed by the computer further comprises, pre-distorting signal transmissions over the transmission channel between the transmitting station and the communication receiving station in order to eliminate channel echoes in a received data signal.

However, Ulm et al. discloses a system and method for equalization of forward and reverse channels of a communication network system wherein he teaches pre-distorting signal transmissions over the transmission channel between the transmitting station and the



communication receiving station in order to eliminate channel echoes in a received data signal (col. 2, lines 50-56; In col. 1, line 55, Ulm et al. discloses that the expected distortions include signal reflections (echoes)).

One of ordinary skill in the art at the time of invention could have easily incorporated the teachings of Ulm et al. and would have been motivated to do so as a method of improving the quality of signals transmitted among nodes of a network.

9. Claims 17-18 are rejected under 35 U.S.C. 103(a) as being unpatentable over Zhang et al. (US Patent 6,775,240 B1) as applied to claim 15, above, in view of Ulm et al. (US Patent 5,608,728).

(1) Regarding claim 17, claim 17 inherits all limitations of claim 15. As noted above, Zhang et al. discloses all limitations of claim 15. Zhang et al. does not disclose wherein the communications interface is to remove channel echoes from received signals by using an echo structure of a received delay/amplitude echo map of the transmission channel.

However, Ulm et al. discloses a system and method for equalization of forward and reverse channels of a communication network system wherein he teaches pre-distorting signal transmissions over the transmission channel between the transmitting station and the communication receiving station in order to eliminate channel echoes in a received data signal (col. 2, lines 50-56; In col. 1, line 55, Ulm et al. discloses that the expected distortions include signal reflections (echoes). Ulm et al. discloses using a return echo of the transmitted signal to make pre-distortion adjustments in the transmitter).

One of ordinary skill in the art at the time of invention would have been motivated to incorporate the teachings of Ulm et al. as a method of improving the quality of signals transmitted among nodes of a network.

(2) Regarding claim 18, Ulm et al. also discloses the apparatus of claim 15, wherein the communications interface is to pre-distort signal transmissions over the transmission channel to eliminate channel echoes in transmitted data signals (col. 2, lines 50-56; In col. 1, line 55, Ulm et al. discloses that the expected distortions include signal reflections (echoes)).

One of ordinary skill in the art at the time of invention could have easily incorporated the teachings of Ulm et al. and would have been motivated to do so as a method of improving the quality of signals transmitted among nodes of a network.

10. Claims 23-24 are rejected under 35 U.S.C. 103(a) as being unpatentable over Zhang et al. (US Patent 6,775,240 B1) as applied to claim 20, above, in view of Ulm et al. (US Patent 5,608,728).

(1) Regarding claim 23, claim 23 inherits all limitations of claim 20 above. As noted above, Zhang et al. discloses all limitations of claim 20, above. Zhang et al. does not teach wherein the communications interface is to remove channel echoes from received signals by using an echo structure of a received delay/amplitude echo map of the respective transmission channel.

However, Ulm et al. discloses a system and method for equalization of forward and reverse channels of a communication network system wherein he teaches pre-distorting signal transmissions over the transmission channel between the transmitting station and the

communication receiving station in order to eliminate channel echoes in a received data signal (col. 2, lines 50-56; In col. 1, line 55, Ulm et al. discloses that the expected distortions include signal reflections (echoes). Ulm et al. discloses using a return echo of the transmitted signal to make pre-distortion adjustments in the transmitter).

One of ordinary skill in the art at the time of invention would have been motivated to incorporate the teachings of Ulm et al. as a method of improving the quality of signals transmitted among nodes of a network.

(2) Regarding claim 24, Ulm et al. also discloses wherein the communications interface is to pre-distort signal transmissions over the respective transmission channel to eliminate channel echoes in transmitted data signals (col. 2, lines 50-56; In col. 1, line 55, Ulm et al. discloses that the expected distortions include signal reflections (echoes). Ulm et al. also discloses the method encompassing a number of system nodes (inherently implying the process for a respective transmission channels, abstract).

One of ordinary skill in the art at the time of invention could have easily incorporated the teachings of Ulm et al. and would have been motivated to do so as a method of improving the quality of signals transmitted among nodes of a network.

***Allowable Subject Matter***

11. Claims 3-7, 15, 25 are objected to as being dependent upon a rejected base claim, but would be allowable if rewritten in independent form including all of the limitations of the base claim and any intervening claims.

***Conclusion***

12. Any inquiry concerning this communication or earlier communications from the examiner should be directed to Lawrence B Williams whose telephone number is 571-272-3037. The examiner can normally be reached on Monday-Friday (8:00-6:00).

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Ghayour Mohammad can be reached on 571-272-3021. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free).

/Tesfaldet Bocure/  
Primary Examiner, Art Unit 2611  
lbw

March 4, 2009

/Lawrence B Williams/  
Examiner, Art Unit 2611